Space Weather Forecast

Issued on Monday 17 March 2025 at 00:42 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Moderate class flares likely. Chance G1/Minor Storms Days 1-2 (17 Mar).

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Low with only common class flares observed, with the strongest from the region in the southeast disc. There are twelve regions on the Earth facing disc, however the majority of these are small and simple. The main growth has been in this southeastern spot, with the emergence of intermediate spots, but also with a small development to the south of the region that is now approaching the north-centre disc. The two main regions of previous interest, one in the northwest and another now in the southwest, are showing signs of simplification.

An eruption off the northeast disc around 16/2020 UTC appears to have produced a Coronal Mass Ejection (CME) that has been deflected quite far south and west. This is still under analysis, however due to the deflection Earth-directed impacts are possible.

Solar Wind / Geomagnetic Activity: Solar winds showed the recent fast winds easing. Speeds declined from slightly elevated levels of around 500 km/s to be near background, around 400km/s. Interplanetary Magnetic Field was weak with the north-south component also weak and variable. Geomagnetic activity was Quiet to Unsettled (Kp1-3).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was at background levels with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Low to Moderate activity is expected, with an ongoing likelihood of isolated Moderate flares.

Solar Wind / Geomagnetic Activity: There are no Earth-directed CMEs, with the CME from late 16 Mar still under analysis. The recent fast winds have now largely eased, but with the chance for a further brief enhancement day 1 (17 Mar). This is low confidence, however. Solar winds then easing again day 2 (18 Mar) onward, becoming background later in the period. Mainly Quiet to Unsettled activity is expected, however any further fast wind enhancement chance for a spell of Active to G1 Minor Storms day 1 (17 Mar).

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 370 900 0100 Email: enquiries@metoffice.gov.uk

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Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is expected to persist at background levels, with a slight chance of enhancement should there be any larger flares.

Geomagnetic Storms

Geomagnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	30	5	5	10
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X-Ray Flares

X-Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 (M Class)	No	60	60	60	60
Very Active	R3-R5 (X Class)	No	5	5	5	5

Solar Radiation Storms (High Energy Protons)

Radiation Storms Probability (Exceedance)	Level ($cm^{-2}sr^{-1}s^{-1}$)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	10	10	10	10
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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